

Amendments to the Specification:

Please replace the paragraph beginning at page 3, line 7 with the following amended paragraph:

Figure 5 shows another embodiment using a [[...]] **common substrate to support the laser and the optical detector.**

Please replace the paragraph beginning at page 3, line 8 with the following amended paragraph:

~~Figure 6...~~**Figures 6A and 6B show two embodiments of integrated optical sensors.**

Figure 7 shows an integrated optical sensor based on a phased Doppler technique.

Please replace the paragraph beginning at page 8, line 7 with the following amended paragraph:

Another embodiment which forms a fiber optic particle probe is shown in Figures **6A and 6B** ~~[[6a and 6b]]~~. A diode laser is used along with curved gratings and detectors. Figure 6A shows a configuration with a laser 600 emitting along both sides 602 and 604. The two-sided emission provides laser output arms 606, 608. Beam 606 is reflected by mirrors 612, 614, and coupled to a curved grating 616. Beam 608 is correspondingly coupled to grating 618. The outputs 622, 624 of gratings 616, 618 are recombined off the surface at a point 610. The point 610, for example, can be 3 millimeters over the surface of the substrate 600. A fringe pattern is formed by the recombination.

Please replace the paragraph beginning at page 9, line 14 with the following amended paragraph:

The grating **654** redirects the light 652 into two separated light beams 660, 662, which are separated by the blocked portion

656. The two light beams 660 and 662 are directed to intersect 3 millimeters off the surface at the point 664. A separate laser 668 produces an IMAX beam 670. As in the Figure 6A embodiment, photodetectors 680, 682 detect the scattered light and use the scattered light to find particle size.